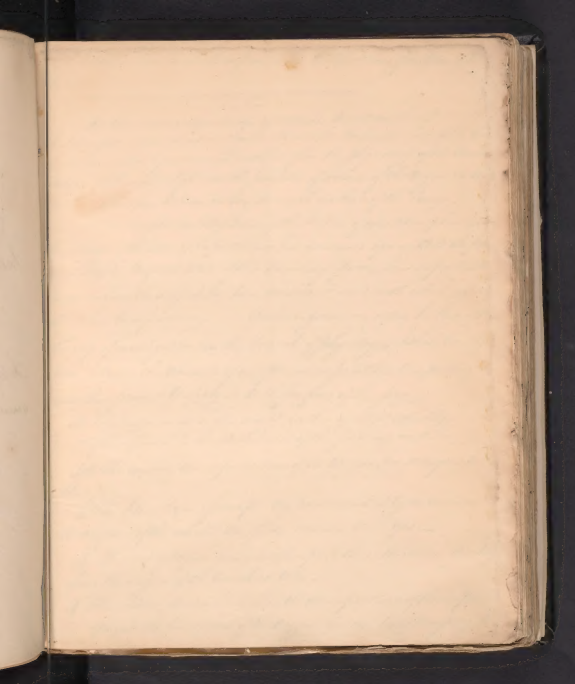
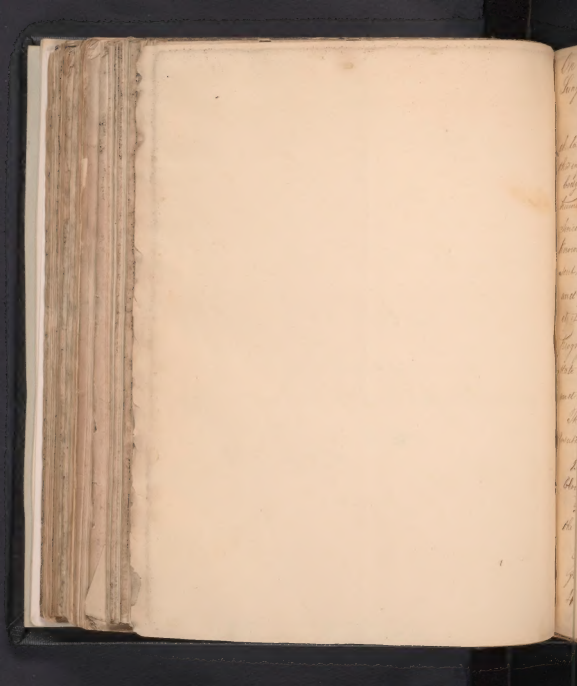


And
Inaugural Dissertation
on the
Influence of certain causes on the
decarbonating function of the Lungs -
C. E. Pearson
W. Pung 1813

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D. S. B. 10
and 10





On certain causes which influence the deoxygenating functions of the Lungs.

In the various departments of Natural Knowledge, the influence of the late rapid advancement in Chemical Science, has been extensively felt; and that influence has by no means ^{been} withheld from the physiology of the Animal body. It has shed light on the functions of several of the Organs in the human economy, but on no one, so much as that of the Lungs.

Since the successful investigation of the Nature of our Atmospheric air, knowledge of the uses of respiration, has advanced to a more perfect, and highly perfected, state of this knowledge, surely, how important and curious the subject has been considered, and with what avidity it has been pursued.

Without giving an entire history of the progress of investigations in this branch of physiology, I shall briefly state what is the amount of our present information respecting it, and then proceed to apply it to the principles of this essay.

The latest experiments on this subject are those of all the celebrated Physicists - the result of their labours is the establishment of the following conclusions -

1st The inspired air imparts none of its Oxygen, nor Nitrogen to the blood.

2^d The blood loses a principle viz. carbonic, which by its union with the Oxygen of the inhaled air, forms carbonic Acid gas.

3^d The Watery Vapour found in the expired air, is the serous discharge from the surface of the bronchial tubes.

4th The Blood derives heat from the decomposition of the inspired air, all the latent heat of the Oxygen gas, not being necessary to -

[Faint, illegible handwriting, likely bleed-through from the reverse side of the page. The text appears to be organized into several paragraphs.]

the formation of the carbonic Acid gas. —

4 The dark colour of the venous blood is owing to its being saturated with carbon; and the bright scarlet colour of the arterial blood, to its parting with carbon in the process of breathing. —

The experiments of those Gentlemen have been conducted on a much larger scale, and with more vigilant industry, to fortify against all sources of error, than those of their predecessors; and they had a more improved State of Chemistry to aid them in their labours.

Their conclusions as to the products of respiration, are not widely different from those of Boerhaave, Lavoisier & Laplace. For the most prominent circumstance of respiration was considered by the latter Chemists to be the separation of carbon from the blood. But as to the quantity of Oxygen consumed, the place of its union with the carbon, and the source of the aqueous vapour, there is a greater disagreement.

It would then appear, that the principal design of respiration is to separate from the blood a matter, which if retained in any considerable quantity, is extremely deleterious to life; but which in a certain limited quantity is harmless. Carbon enters largely into the blood as a part of the chyle; and but a small portion of it seems to be expended in the process of nutrition and secretion. The design of this surplus perhaps is, to promote the conversion of chyle into perfect animalized blood; and to assist in effecting those decompositions and new combinations which occur in nutrition and secretion. Having answered the above purposes it is conveyed out

of the system chiefly through the lungs. Carbon is thus an excretion,
a term which was first applied to it by Professor Boerhaave of this University.

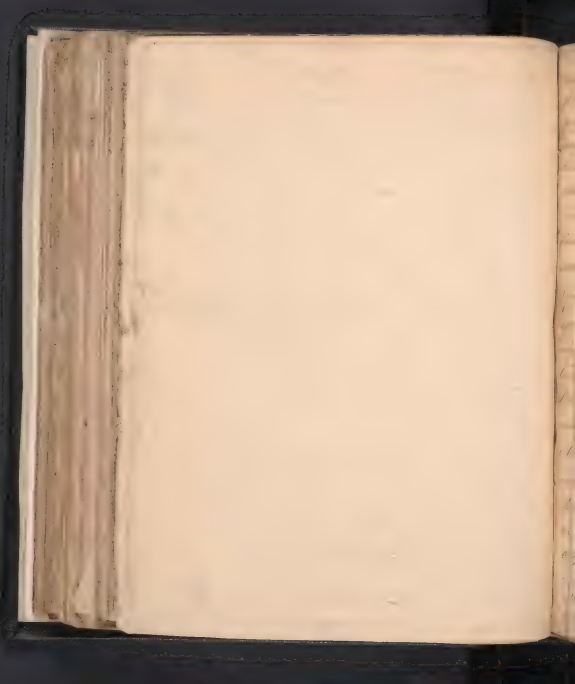
We consider its separation from the blood not as a secondary
circumstance, and one, merely instrumental, to the production of
Animal heat; but as a process primarily, and in itself essential
to the healthy condition of the Animal machine.

Having given this preparatory sketch of what occurs in
Respiration, I proceed to state a conjecture, which I shall endeavor
to support in the subsequent parts of this page. viz. That there
are certain circumstances affecting Respiration, which subject the
human system to such a vitiation of the Nature of the blood,
as to be morbid, and cause disarrangement and disease, I am
not to be considered as speaking of those sudden, and absolute
interruptions of the Functions of the lungs, which constitute as-
phyxia and suffocation, but such as are not the effect of Acci-
dent, and arise from causes which are gradual and extensive
in their operations. There are obviously 3. Circumstances, on
which must depend the more or less ~~the~~ perfect decarbonation of
the ^{the velocity of the circulation of the blood;} blood; ^{the} the state of the atmosphere breathed; and the freedom
with which the air is admitted to the extreme pulmonary vessels.
According to this general division will be arranged the facts and
arguments, by which I shall attempt to defend the above position.
But of those causes which influence the Circulation, I propose
to confine myself to one. viz. Exercise.

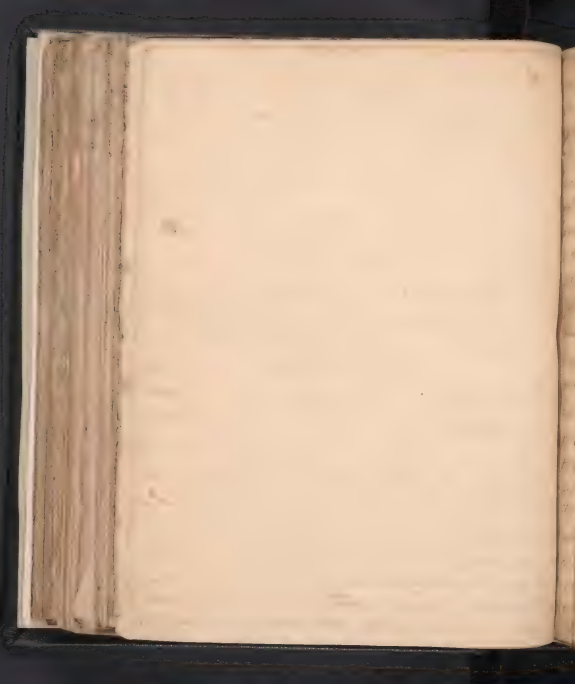
Effects of Sympy' Cancer on the 2^d & 3^d Co. luv.
in the Lungs.

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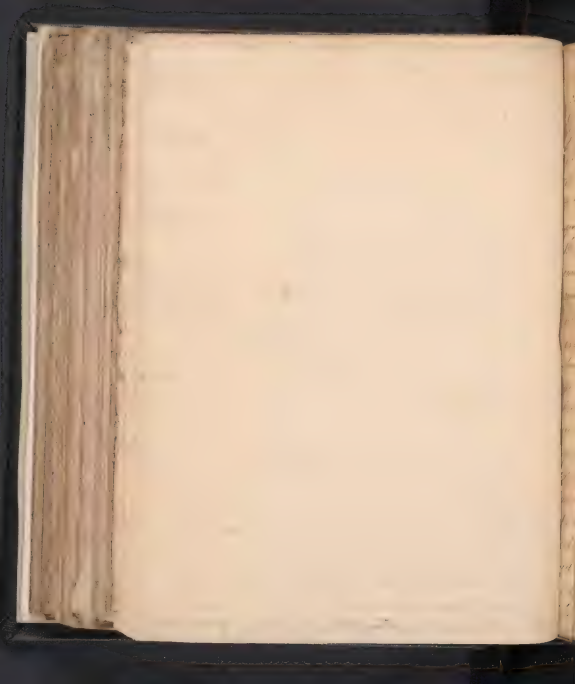
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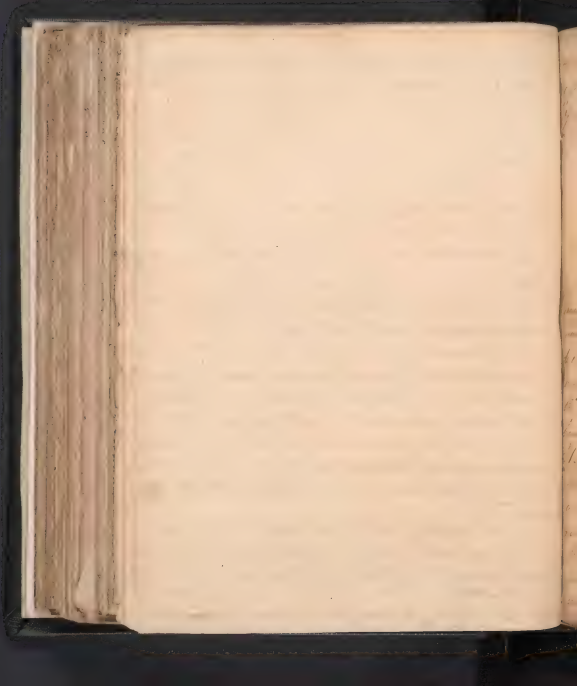
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It may be objected that in cases like these, when there is a conflict of interest with the public, none of the bad consequences that have been mentioned are avoidable. But in such cases the law must be made so strict, that in many facts might be attended by two, or

[illegible]

The next class of cases to all like cases is the
 valent, dyspeptic, the first is the
 imitated Melancholick, and the beds are in the region
 Nervous derangement, the state of the system is
 reason and inclination, the system is in the state
 of the Medicine has been tested in the
 countable proportion but does not affect the
 in many cases, the effect of the system is the
 the system, only the time is the state of the system
 is the state of the system.

It may be objected that in cases like these, when there is a conflict of interest with the public, none of the bad consequences that have been mentioned are avoidable. But in such cases the law must be made so strict, that in many facts might be attended by two, or

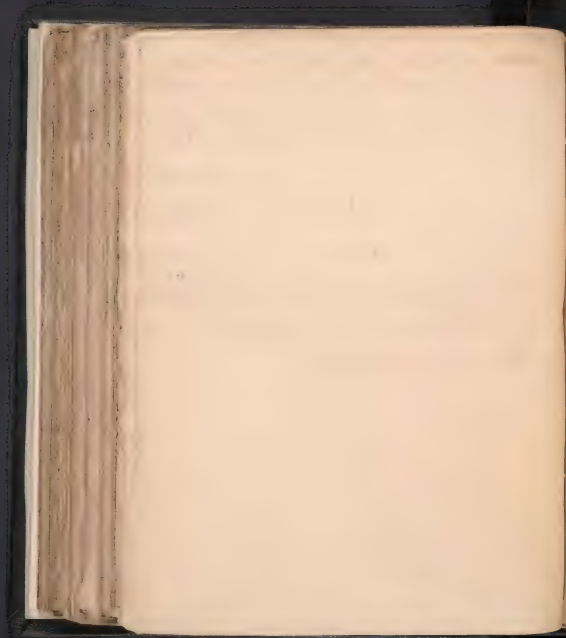


... by the out ... but is found to contain ...
... the ...
... Oxygen and Hydrogen - As then during Abstinence
... the discharge of ...
... My abridged, and at the same time ...
... continued ...
... the ... different in quantity or quality, we are not
... compelled to conclude that ...
... effect. The ... is ... by the fact, that
... exhalation from the lungs, which is ...
... the ... of ...
... the ...
... of ...
... and ...
... it ...
... the ...
... is ...
... it ...
... of ...
... the ...
... the ...
... the ...
... the ...
... the ...



14. I'll be that they can get above, to run out, 11
 I will not admit of my being particular on this
 point, although a just cause, the reputation of the rep-
 ublic, further, the the nation of it, would be the
 first to be given the name of it.

too little exercise. Some cases arise in England. It is very common to see the patient stout & corpulent, and yet to find the lungs diseased. I have never seen it. But in what manner this is caused by a redundancy of caloric power, I will not say. It is not often in the subject. Habitual exercise is not at any other time. When affected, it is not.

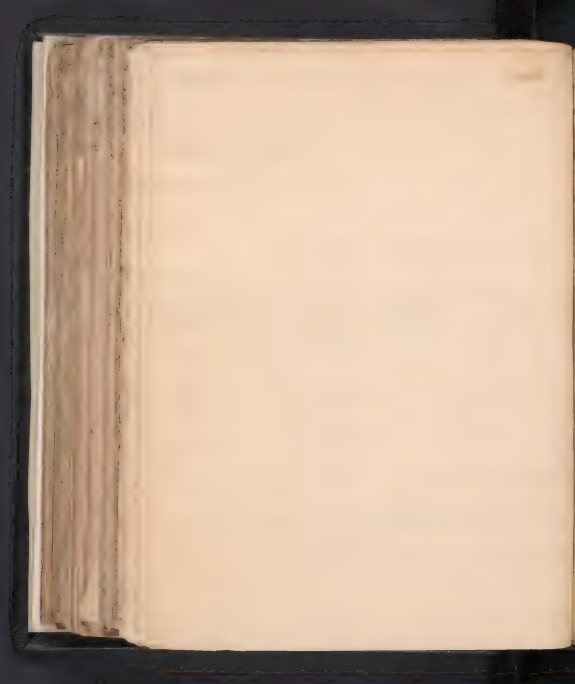


of Circulating Carbonic

As the State of the Air we breathe may change either
from its bulk being swayed or in a diminution of weight in
the Atmospheric column, there observe a corresponding division
to that of its composition.

1st Chapter on Heat, & Moisture

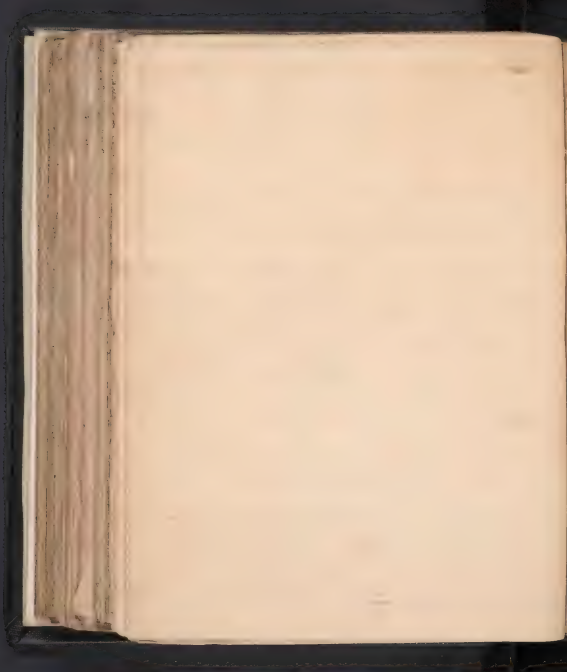
The quantity of Carbonic Acid in the Air is
not constant, but varies with the temperature of the
Atmosphere, & the height of the place. It is
found to be in the ratio of 1 to 10000 in the
lowest part of the Atmosphere, & in the highest
part of the Atmosphere it is found to be 1 to 14
or 15. The quantity of Carbonic Acid in the
Atmosphere is not constant, but varies with the
temperature of the Atmosphere, & the height of the
place. It is found to be in the ratio of 1 to 10000
in the lowest part of the Atmosphere, & in the
highest part of the Atmosphere it is found to be
1 to 14 or 15. The quantity of Carbonic Acid
in the Atmosphere is not constant, but varies
with the temperature of the Atmosphere, & the
height of the place. It is found to be in the
ratio of 1 to 10000 in the lowest part of the
Atmosphere, & in the highest part of the
Atmosphere it is found to be 1 to 14 or 15.



the most difficult problem, There, as estimated 134 cubic inches of
gas were consumed. The rest of the gas, I suppose, that the air
in the lungs of the animal, is consumed, or exhaled, or
of some, it is put out to be used, or it is not used at all.

Oct. 1. I have found, from a dog, Air Rains to the impuration of 134.
After a short confinement in the situation, the oxygen consumed was
found to be not less than what was consumed by the same animal
in the usual impuration. But he says notwithstanding
that the venous blood was much lighter color, by
looking through the trachea tube. But as the trachea was darkening
to him, he concluded that the change of arterial into venous
blood was, however, from trachea place to the natural extent.
Convinced, this experiment I have only to observe, that the
distinction of the arterial and venous blood is not a one, the
impuration from the oxygen, to an impure trachea, or
addition, and violent, that the usual impuration is not
to be considered as a one, but as a mixture of several
impurities, and of course that it cannot be considered as a
impurity of any bearing on the present question.





... of the ...
... of the ...
... of the ...
... of the ...

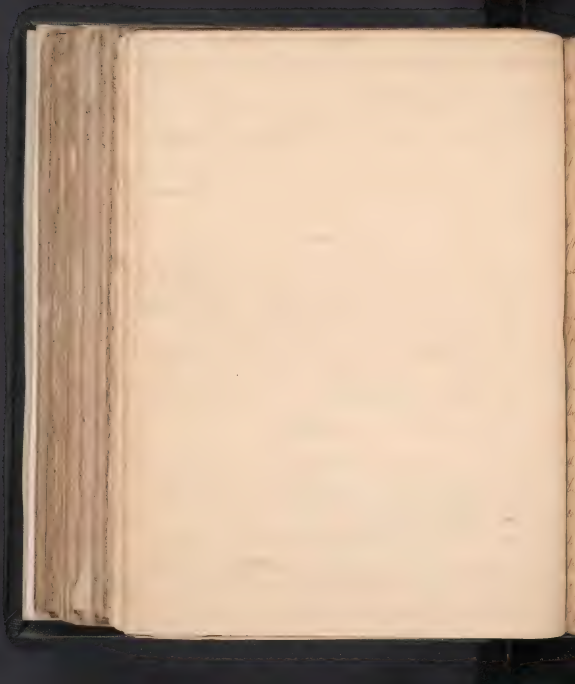
The ... of the ...
... of the ...
... of the ...
... of the ...

There are not wanting facts which ...
... of the ...
... of the ...
... of the ...

thought the ... of the ...
... of the ...
... of the ...
... of the ...

... of the ...
... of the ...
... of the ...
... of the ...





[illegible]



[illegible]







[illegible][illegible]

It is a pity that the
the



off 1844. Dr. Hallyday in his account of
the climate of the island, says the 23rd June the 6th July
the 11th August in many assemblages were killed. His in-
terpretation is that the rains season, and at the off of the
year. Next, the 11th August, he says, the 11th
all in this climate we have seen in the same of
the 11th August, and at the off of the
the 11th August, and at the off of the

[illegible]



[illegible]



Expt. II. is a continuation of the first
the length of the column.

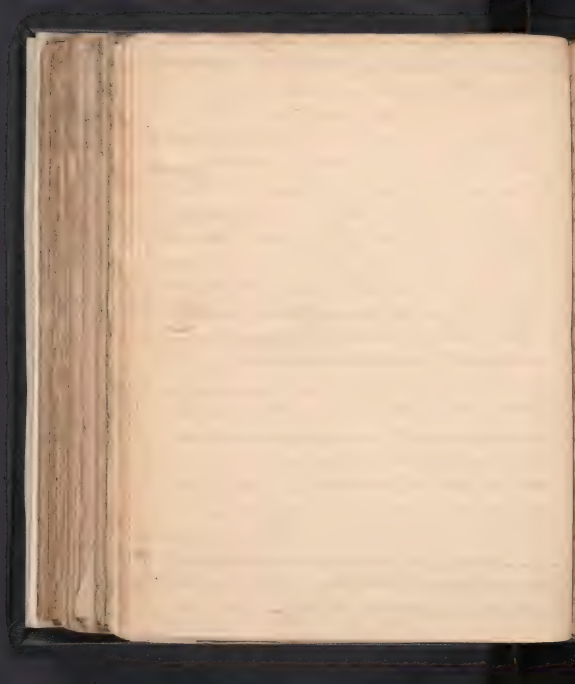
At the same time the column is 1/2 inch shorter
columns, as appears from the changes in the barometer; the
change in the density of the air, and cons.
in the quantity of Oxygen contained in a
given bulk. As this variation is not inconsiderable. It
is not surprising that the difference in the height of the
column is more than the difference in the barometer.
The difference in the height of the
column is 1/2 inch, and the difference in the barometer
is 1/4 inch.

The column is 1/2 inch shorter in the air than in the
vacuum, and the difference in the height of the column is
1/2 inch, and the difference in the barometer is 1/4 inch.
The difference in the height of the column is 1/2 inch,
and the difference in the barometer is 1/4 inch.
The difference in the height of the column is 1/2 inch,
and the difference in the barometer is 1/4 inch.

11. The first column is 1/2 inch shorter in the air than in the
vacuum, and the difference in the height of the column is
1/2 inch, and the difference in the barometer is 1/4 inch.
The difference in the height of the column is 1/2 inch,
and the difference in the barometer is 1/4 inch.
The difference in the height of the column is 1/2 inch,
and the difference in the barometer is 1/4 inch.



[illegible]





... at quantity, ...
... of the ...
... Spirit, ...
... and ...
...
... in those who are ...
... a light atmosphere ...
... in the blood is ...
... in the lungs, its ... to the heart ...
... extreme ...
... this ...

I have enumerated ...
... it to act ...
... Oxygen to the blood.

The Asthmatic is much annoyed by damp weather, ...
... from two causes. 1st. The humid state of the ...
... is almost ...
... in a given bulk of air. It is most to the ...
... quantity of ...
... the life ...
... the purposes of respiration.

Another instance ...
... the cause I have mentioned, is the ...
... at Mostick ...



[illegible]

The first part of the book is a history of the
 people, from the first settlement to the present
 time. It is a very interesting and useful
 work, and is well worth a perusal.

W. I. perfect decarbonization of the ...
 (1841) ...

[illegible]





Before concluding, it is incumbent on me to make some apology for
this essay. It may be considered, and I fear with too much reason,
not only as Novel, but hypothetical, and wildly speculative.
I must confess, that at my outset, had I seen the faults of my materi-
als, and the grotesque and unshapely structure I was about to
raise, I might have left the work for a future visionary. But I
thought I discovered many facts, pointing to the deductions I
have drawn. I fancied that the subject had ^{truth lurking} ~~hidden~~ ~~treasures~~
within it, which might be elicited by the investigation. And in
commencing it, I felt like the eager mineral hunter, who had
wandered into some wild, and unfrequented spot, and commenced
digging a pit: while his only assurance of meeting with the objects
of ^{his} search, he derives from the unexplored, and rugged aspect of
the place. Perhaps I may now compare myself to the same
mineralogist, who after toiling with his pickaxe and spade,
until fatigued, finds himself in possession merely of a few paltry
specimens, which he would leave where he found them, were
it not for the mortification of returning ^{home} without anything.

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Inventory 189

Resuscitation

1013-

No 44 - No 76

Conradist D. Potts.

Trinity and Mercantile

University of Birmingham

1892

